CLAIMS:

1. A method for visualizing patterns, such as change, on a compute infrastructure,

a. Wherein any physical or logical concept within can be a node to be monitored for pattern, such as a business process, object or application, embedded devices;

b. Wherein specific colors represent specific pattern conditions;

c. Wherein a range of colors represents a range of pattern conditions;

d. Wherein a combination of range coloration and individual colors are used to denote pattern conditions;

e. Wherein individual elements in a compute infrastructure, called nodes , are monitored and patterns displayed;

f. Wherein individual elements in a compute infrastructure are banded on a map by a set of common groupings, such as location, subnet, business owners etc;

g. Wherein individual elements in a compute infrastructure can be banded together into a logical grouping and studied for patterns. These groupings overlay the individual elements on the map, such that the entire population of nodes can be visualized with respect to the logical grouping;

h. Wherein in studying individual elements or node groupings for patterns, a subset of saved attributes called a Baseline can be used to further qualify and visualize patterns; and

i. Wherein icons can be used to represent nodes (in a general sense).

2. A method for displaying text information on a map,

a. Wherein text is displayed on the icons on the map;

b. Wherein text is assigned based on the value of a single attribute;

c. Wherein text is the result of the output of a function, which takes as input multiple attributes; and

d. Wherein text is a result of the output of a user defined function.

3. A method for grouping nodes within a map,

a. Wherein the association between related nodes (e.g. location, in the preferred embodiment) is identified by grouping them within grid lines; and

b. Wherein a plurality of methods of association is provided (e.g. nodes can be grouped into different grid lines, such as internetworking subnet association, location, business owner, etc.).

4. A method to compare alternate groupings of nodes to one another,

a. Wherein selecting one or more saved node groups, highlights the nodes in that group, so that they can be observed in relationship to the whole population of nodes;

b. Wherein the whole population remains visible;

c. Wherein the nodes in the node group become obvious by means of altering the color of the border around the node;

d. Wherein the nodes in the node group become obvious by means of a 3-dimensional effect, where the nodes in the node group apparently pop-out;

e. Wherein words, color, lines or graphics are used to identify nodes within the node group against the population of nodes; and

f. Wherein the population of nodes patterns in an inverse manner (e.g. highlighting, receding, color pattern etc), so as to draw attention to the nodes in the node group.

5. A graph to identify the percent of pattern of all the nodes in a node group,

a. Wherein the pattern in the overall population of nodes is contained in the pie chart;

b. Wherein only the selected group's pattern is illustrated in the pie chart;

c. Wherein any graph is used to illustrate pattern;

d. Wherein exists an auto focus function, that will automatically select the node group with the most amount of pattern;

e. Wherein exists an auto focus, that will automatically select and sort all node groups, displaying the one with the most pattern on the top, but allowing the user to cycle through all of the choices in rank order of most to least pattern;

f. Wherein exists the ability to customize pattern colors on a global basis; and

g. Wherein exists the ability to customize pattern colors on a per node basis, so that specific nodes have specific color ranges.

6. The method as in any of the preceding claims wherein the pattern can be display as single color representing no pattern, such as green and another single color representing pattern such as red,

a. Wherein the colors are selectable; and

b. Wherein the colors can be selected on a per node basis.

7. The method as in any of the preceding claims wherein the pattern can be displayed as a range of color,

a. Wherein the colors are selectable;

b. Wherein the colors can be selected on a per node basis;

c. Wherein the contribution of individual attributes to the overall color can be controlled by the user such as in a weighted average;

d. Wherein the color displayed is controlled by a number that is returned from a moving average function, whose values indicates the percentage in the color range to display;

e. Wherein the number of samples that go into the moving average is controlled by the user as delta time;

f. Wherein a trade secret algorithm, not fully disclosed, displays the range of color from the rate of pattern, such that, an attribute that is normally high (e.g. CPU 90%) gravitates to green (good) over time, even though the average is high;

g. Wherein the condition to determine the range of pattern is a user defined function, specific to the attribute being tested for pattern; and

h. Wherein the user can determine to what degree the individual attributes contribute to the overall color. This allows individual attributes (e.g. CPU) to have greater impact on the color than less significant attributes (e.g. free pages in memory).

8. The method as in any of the preceding claims wherein the custom timeframes can be selected, allowing the data that is used to contribute to a pattern computation and color display to come from specific recurring times.

9. The method as in any of the preceding claims wherein the baselines are used to contain saved attributes results (e.g. TCP settings and CPU thresholds),

a. Wherein the system functions normally without baselines such as using the last state is the default baseline;

b. Wherein baselines contain all or a subset of the attribute values; and

c. Wherein baselines are used to highlight which nodes (in the general sense) have legitimate values for those attributes. In other words, nodes without legitimate values for attributes defined display differently. For example, nodes without CDROM disks have no legitimate attribute for CDROM Baseline and are turned gray when the CDROM baseline is selected.

10. A pie chart to display the percentage of pattern in a specific Baseline,

a. Wherein the percentage of pattern for all the attributes contained in the baseline is summarized graphically in a pie chart; and

b. Wherein any alternate graph such as a bar chart can also be used to summarize pattern.

11. A drill down capability to limit the size of the population of nodes (in a general sense) being studied,

a. Wherein the drill-down capability exists to limit the display to only the nodes in a group;

b. Wherein the drill-down capability exists to limit the display to only the nodes that contain attributes in one or more saved Baselines; and

c. Wherein exists a mechanism to combine via AND/OR conditions to display drill down from either baselines and node groupings to further limit a population.

12. A method to visualize temporal patterns in data,

a. Wherein the user can view a compute infrastructure only using attribute data from specific timeframes (such as every Monday between 2PM and 4 PM) to either include or exclude from the visualization;

b. Wherein the user can define a function that can customize timeframes, such as every Monday between 2 and 4 PM; and

c. Wherein the user can string together by means of AND/OR conditions multiple functions for define multiple ranges of time from which to exclude or include attribute data.